Service Manual

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Jun. 2012	
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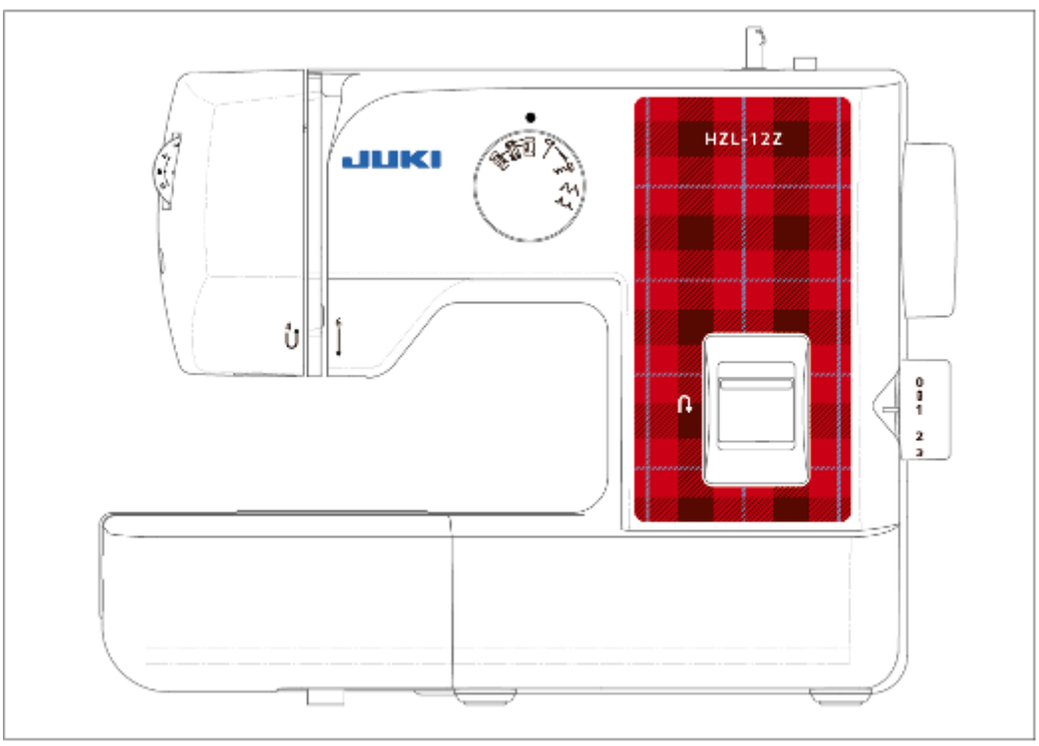

HZL-12Z

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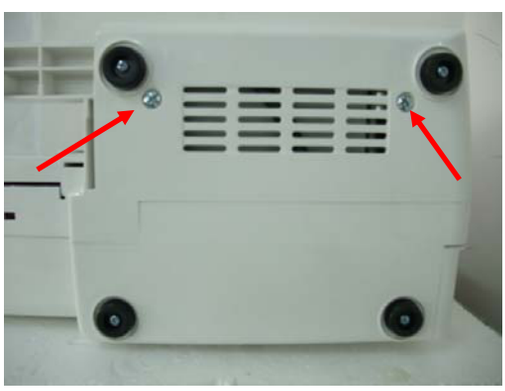
*The parts in the pictures can be looked differently as what they are.

(1) Removing a face cover

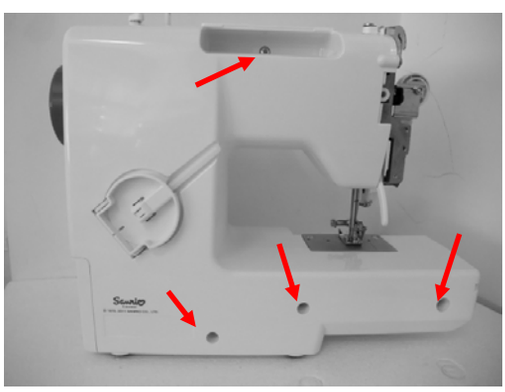
Take out 2 screws and remove a face cover.

(2) Removing a front cover

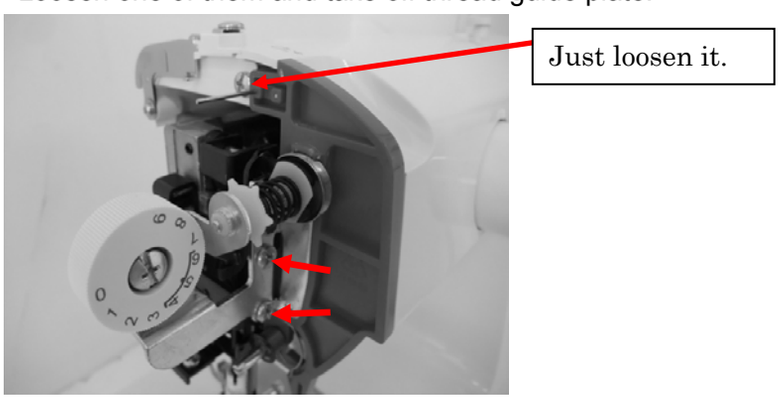
1. Take out 2 screws on a bottom surface.



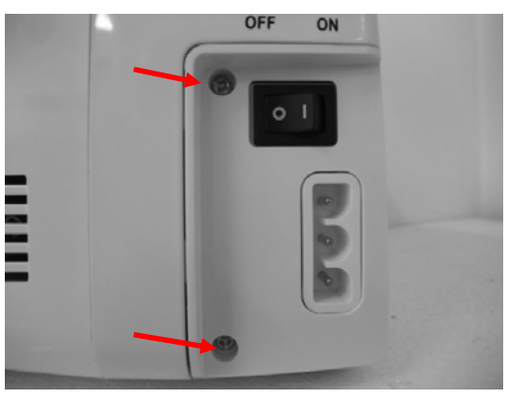
2. Take out 4 screws of a back face.



3. Take out 2 screws of a thread guide plate.
   Loosen one of them and take off thread guide plate.



4. Take out 2 screws and take off a switch cover.



5. Remove front and back covers with a small screw driver.

1. DISASSENBLING OUTER PARTS (3)

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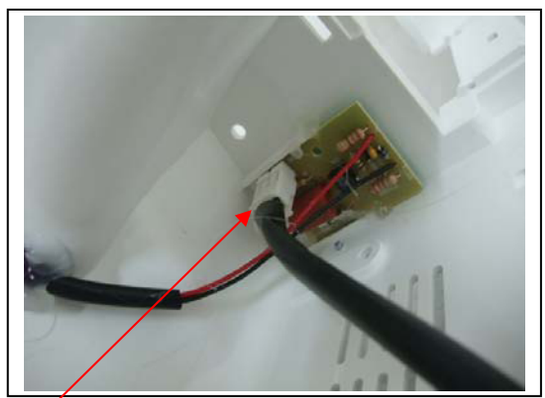
6. Extract a length control dial

7. Take off a side-on connection putting a hand in a hole of length control dial.
   Take off a connection of a needle bar.

8. Take off a front cover.(Including a shuttle cover)

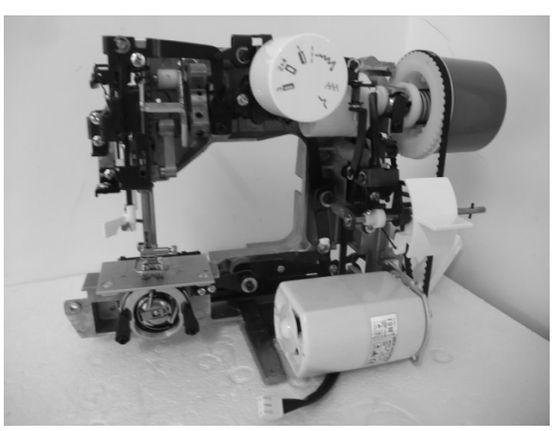


Disconnect this connector, and you can take off a front cover.

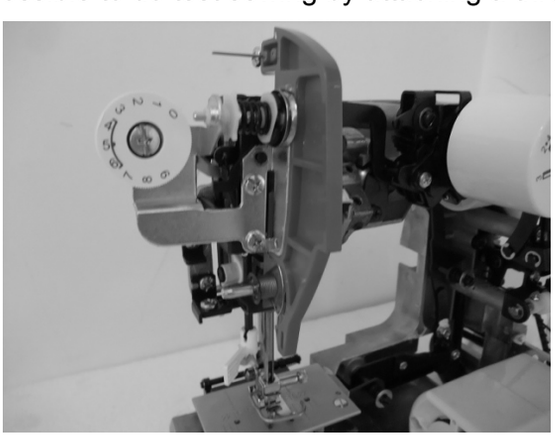
(3) Taking off a back cover.

1. Pull out a switch cover after taking out screws.

2. Pull out a back cover backwards and take it off.



*It is possible to do test sewing by attaching a thread guide plate(set).



2. FEED DOG HEIGHT

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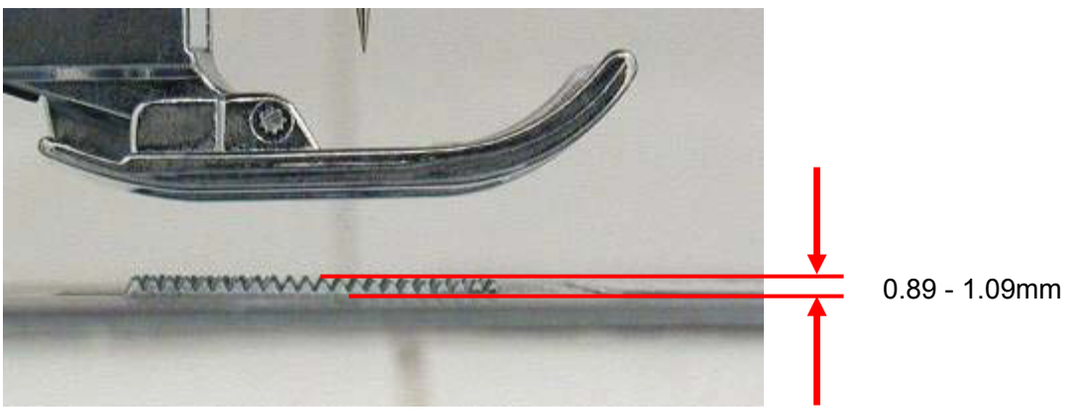
〔Checking〕

1. Set the stitch length control at “maximum”.
2. Turning a hand wheel by hand, bring up feed dogs to their top position.
3. Check if feed dog height is 0.89 – 1.09 mm from upper surface of a needle plate.

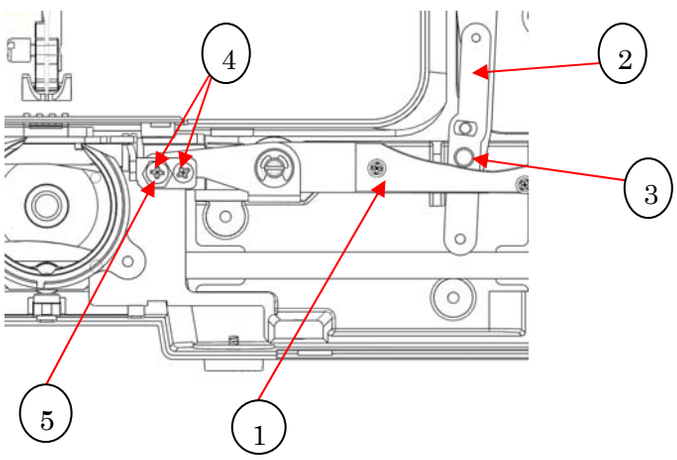


〔Adjustment〕

1. Under checking condition, while pushing a feel lifting lever(1) against a pin(3) of a shuttle adjust lever(2), correct feed dog height by loosening 2 screws(4) and turning an adjusting nut(5).

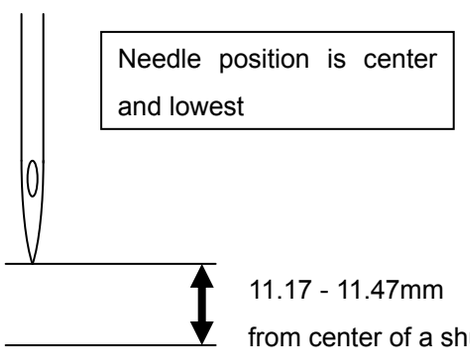
   Lift a screw driver down(Clockwise direction) → Feed dogs become high

   Lift a screw driver up(Anticlockwise direction) → Feed dogs become low



〔Checking〕

1. Set the zigzag width at “maximum”.
2. Turning a hand wheel by hand, bring a needle to its right hand and lowest position. Then bring it to the center of a needle plate eyehole by turning the zigzag width control dial.
3. Check if height of a needle tip is the same level as bottom surface of a gage.

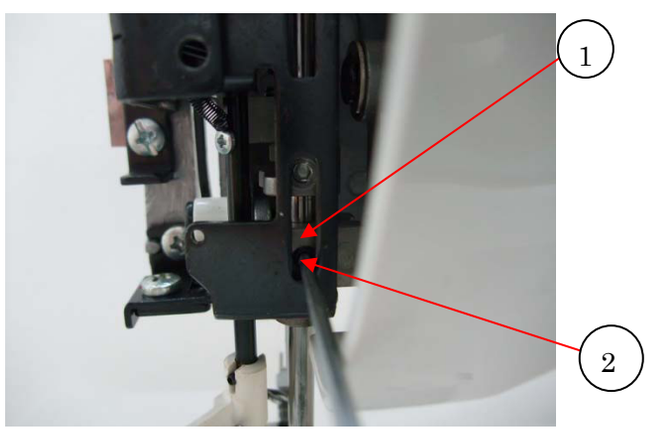


* Bottom surface of a gage is 11.17mm from the centre of a shuttle.

* Top surface of a gage is 11.47mm from the centre of shuttle.

〔Adjustment〕

1. Remove a face cover.
2. Remove a thread guide plate(set).
3. Loosen a screw(2) of a needle bar clamp(1), and correct needle bar height by sliding it up and / or down.After adjustment, tighten a screw(2) securely.(When tightening a screw, a needle must be facing front.)



4. HOOK OF NEEDLE THREADER

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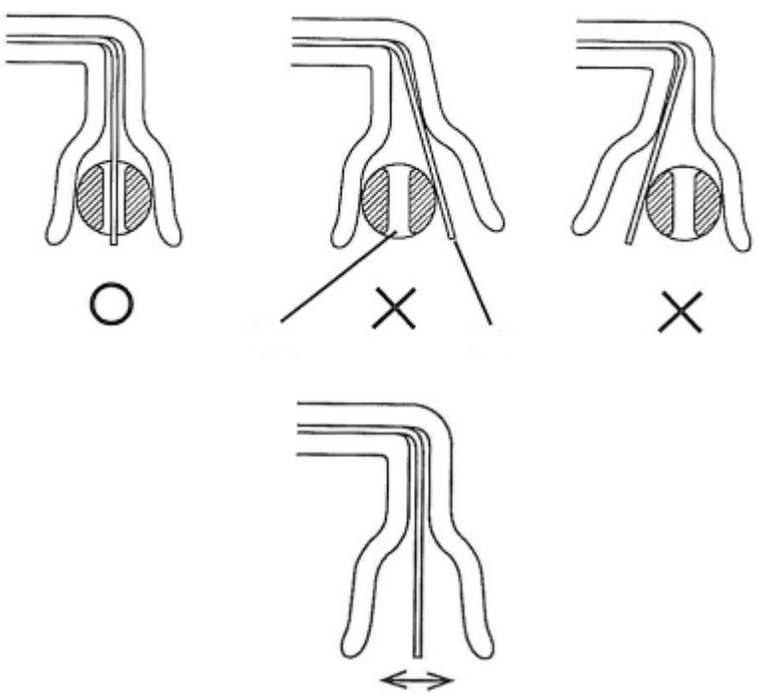
〔Checking and adjustment〕

Adjust position of a hook by using one of accessories, a small screw driver when a hook is not aligned.



5. PRESSER FOOT HEIGT

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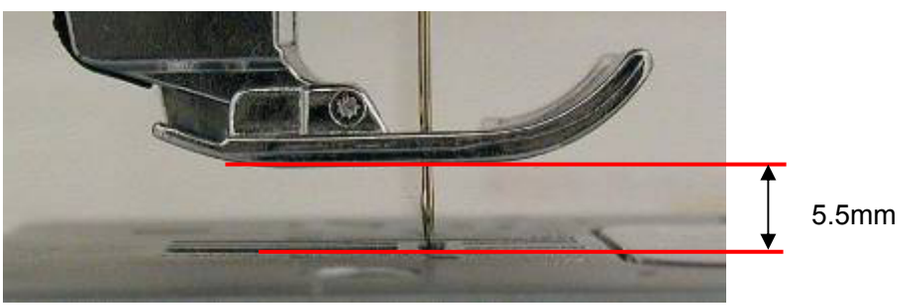
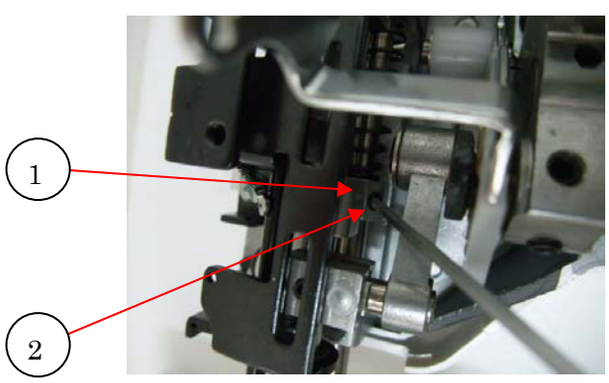
〔Checking〕

1. Raise a presser foot lifter.
2. Lower feed dogs below the upper surface of a needle plate by turning a hand wheel.
3. Check if clearance between a presser foot and a needle plate is approx. 5.5 mm.



〔Adjustment〕

1. Raise a presser foot lifter.
2. Loosen a screw(2) of a presser bar bracket(1), and correct presser bar(3) height by sliding it up or down.
3. After adjustment, tighten a screw(2) securely, keeping a presser foot in parallel with feed dog direction.



6. **Needle position, Straight stitching**

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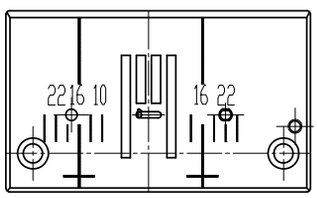
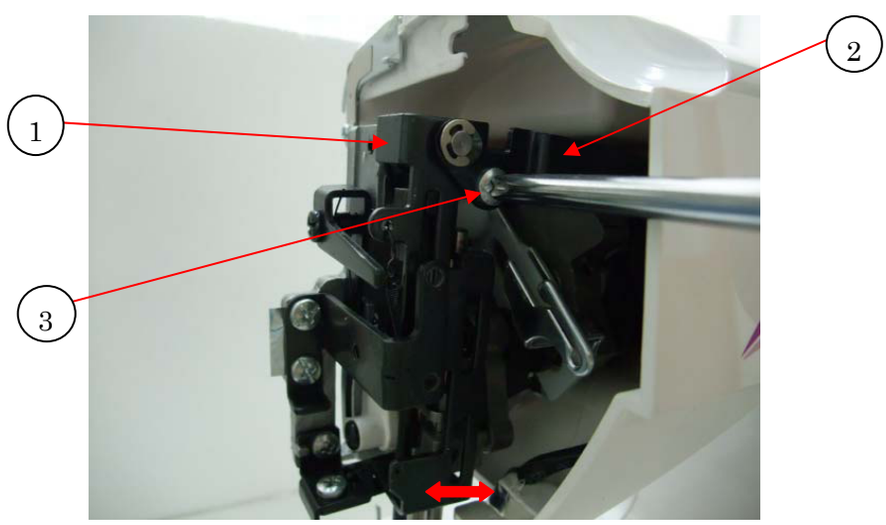
〔Checking〕

1. Set the zigzag width at “0”.
2. Turning a hand wheel by hand, bring a needle to its lowest position.
3. Check if a needle comes to align with dent mark at the left end of a needle plate eyehole, at this needle position.



〔Adjustment〕

1. Remove a face cover.
2. Remove a thread guide plate.
3. Loosen a screw(3) connecting a zigzag guide bar(2) to a needle bar support(1), and correct needle position by moving the support(1).
   After adjustment, tighten a screw(3).



7. NEEDLE SIDE MOTION

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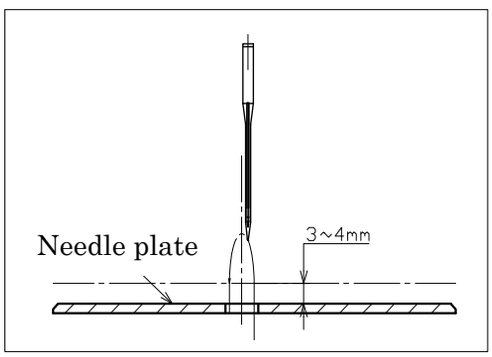
〔Checking〕

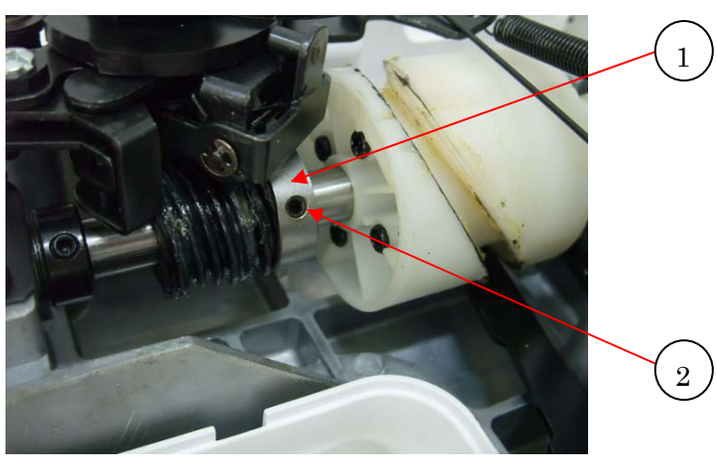
1. Set the zigzag width at “Maximum”.
2. Turning a hand wheel by hand, observe needle movement from its right hand bottom position upward through a needle plate eyehole.
3. A needle should not start its leftward movement until it comes up 3-4mm. above the upper surface of a needle plate.



〔Adjustment〕

1. Loosen 2 screws(2) of a worm gear(1) on an upper shaft.
2. Holding a gear(1), turn a hand wheel and adjust set angle of a gear to the upper shaft.

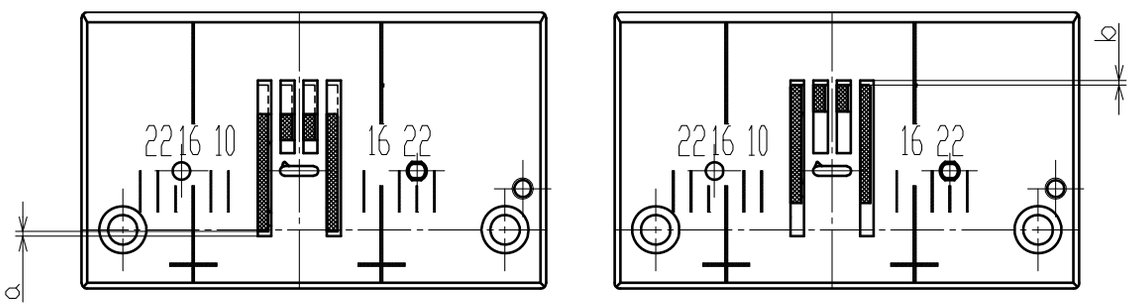
   Needle side motion too early → Turn a hand wheel towards you.
   Needle side motion too late → Turn a hand wheel away from you.
   *During adjustment, use only one screw to set a gear.
3. After adjustment, tighten 2 screws(2) at worm gear(1).



8. FEED DOG CLEARANCE TO NEEDLE PLATE HOLE

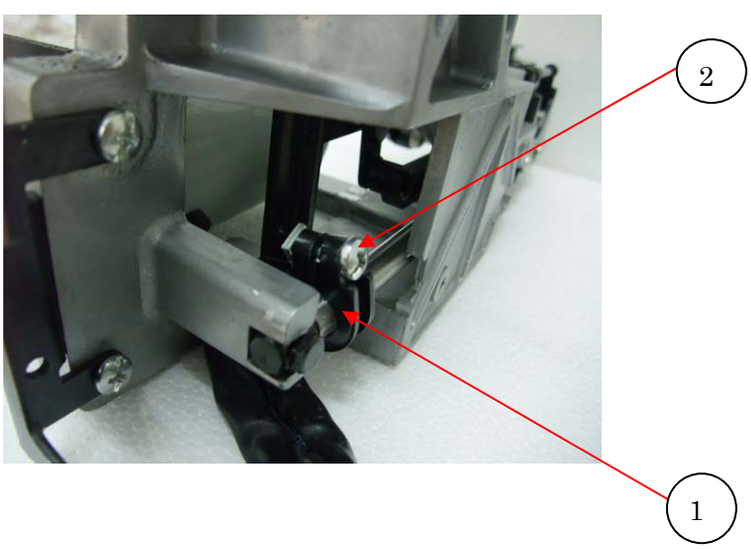
〔Checking〕

1. Set the stitch length control at “maximum”.
2. Turning a hand wheel by hand, check and see if clearance(a) between a front edge of feed dogs and that of a needle plate hole at the extreme front end position of feed dogs, and clearance(b) between a rear edge of feed dogs and that of a needle plate eyehole at the rear end position of feed dogs, are approximately the same. (It should be a=b.)



〔Adjustment〕

1. Turning hand wheel by hand, bring feed dogs to their front end position.
2. Loosen screw(3) setting a feed rocking arm(2) to a feed rocking shaft(1), and correct condition (a=b).
3. Tighten a screw(3) securely after adjustment.



9. NEEDLE TIMING TO SHUTTLE

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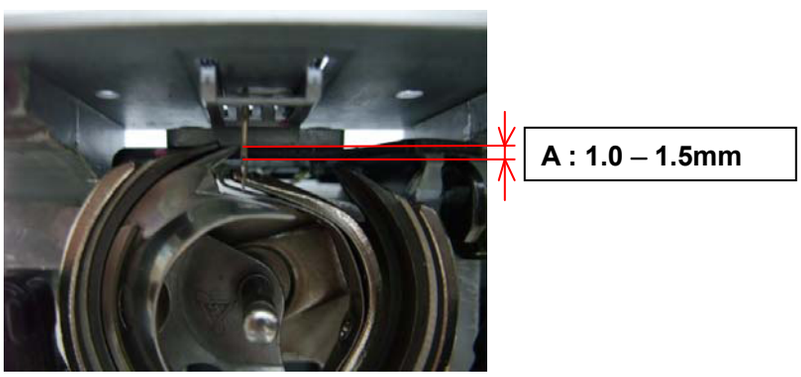
[Attention] Before proceeding to this section, 3. NEEDLE HEIGHT must be checked first.

〔Checking〕

1. Remove a bobbin case and a shuttle race cover from a shuttle race.
2. Set the zigzag width at “maximum”.
3. Turning a hand wheel by hand, bring up a needle from its right hand and lowest position, until a shuttle hook point comes to align with left side of needle. At this position, check if a shuttle hook point is 1.0 – 1.5 mm above the upper edge of a needle eye(A).



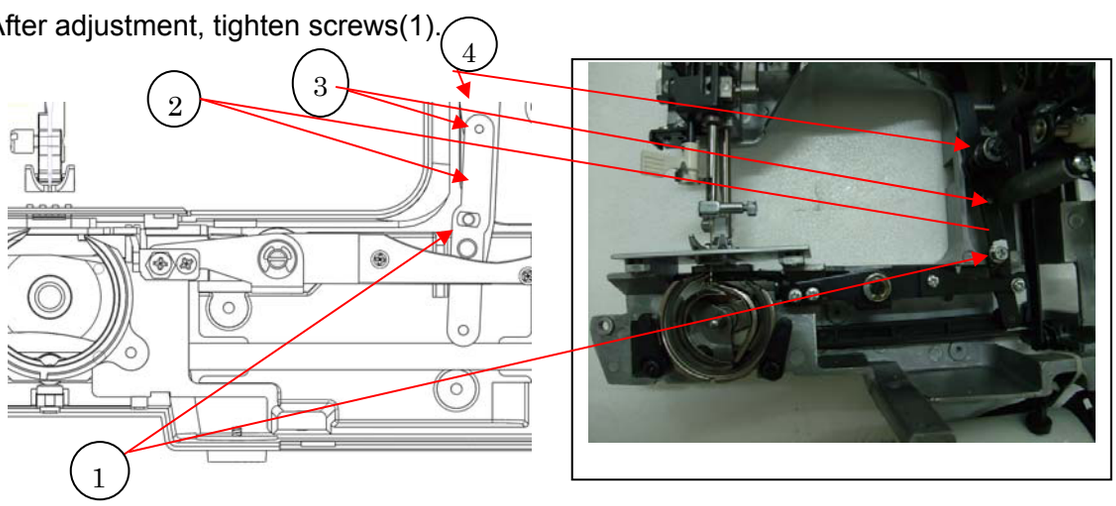
〔Adjustment〕

1. Loosen screws(1) of a shuttle adjust lever(2), and correct the timing by moving a lever(2) towards left or right, while pressing a lever(2) against a shuttle drive arm (4) to ensure positive engagement of projection(3) on the back of a lever(2) with mating eyehole on a shuttle drive arm(4).

   Timing too early → Move an adjust lever(2) towards right.

   Timing too late → Move an adjust lever(2) towards left.

2. After adjustment, tighten screws(1).



10. CLEARANCE BETWEEN NEEDLE AND SHUTTLE HOOK POINT

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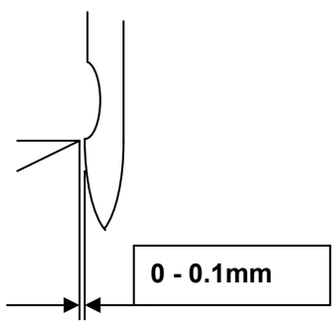
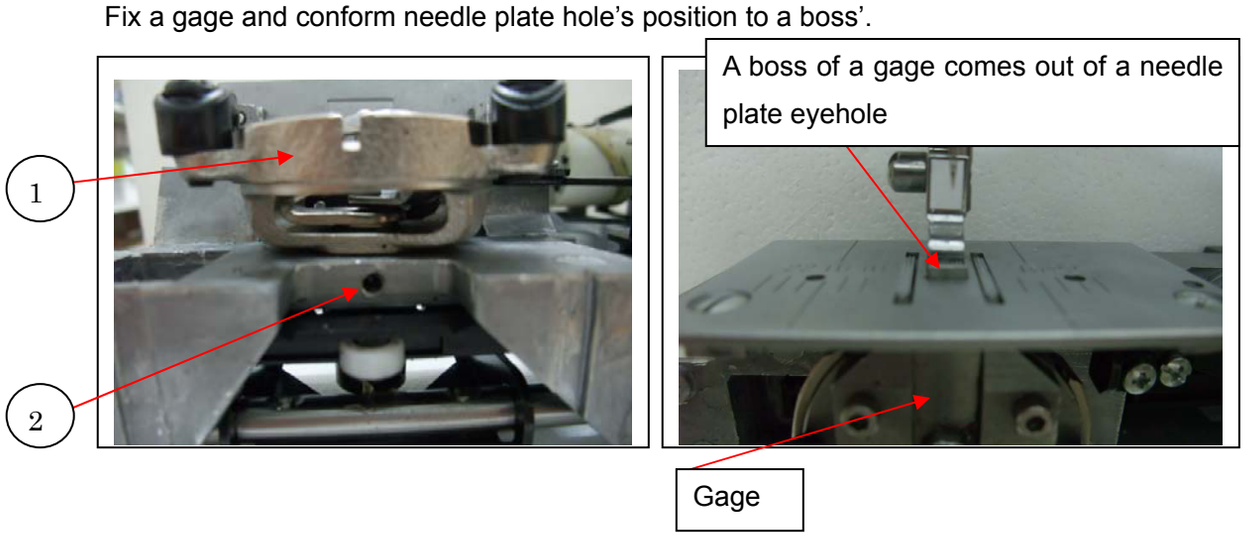
〔Checking〕

1. Remove a bobbin case and a shuttle race cover from a shuttle race.
2. Set the zigzag width at “maximum”.
3. Turning a hand wheel by hand, bring up a needle from its right hand and lowest position, until a shuttle hook point comes to align with left side of needle. At this position, check if clearance between a shuttle hook point and a needle plate eyehole is 0 – 0.1 mm.



〔Adjustment〕

1. Remove outer covers.
2. Loosen screws(2) of a shuttle race(set)(1) and adjust the position.
   Fix a gage and conform needle plate hole’s position to a boss’.



3. Check if a boss of a gage goes up and down smoothly.
4. Tighten screws(2) after the position is fixed.

11. SHUTTLE SHAFT RATTLE

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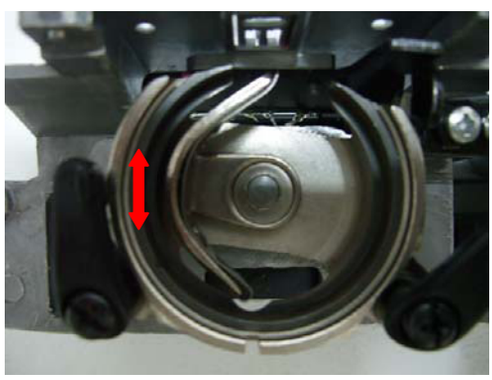
< Checking the engaging of a shuttle shaft and a rack>

〔Checking〕

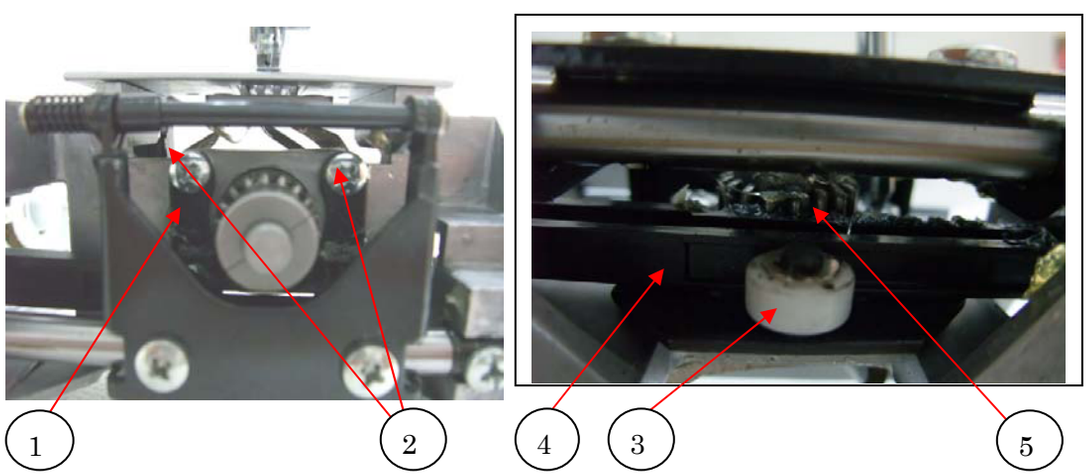
1. Make sure that there is no rattle in a shuttle shaft.



Make sure that there is no rattle in the directions as an arrow indicates.

〔Adjustment〕

1. Loosen 2 screws(2) of a roller board.
2. Adjust the engaging of a rack(4) and a shuttle shaft gear(5) by moving a roller(3) up and down.



3. Make sure not to make an upper torque heavy by adjusting engaging.
4. Tighten up 2 screws(2) after adjustment.

12. THREAD TENSION

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〔Checking〕

1. Set the length control dial at “5”.
2. Check tension number by putting polyester thread #60 through tension plates and pulling it.
3. Keep 22 - 28 g at the tension of a dial.

*The tension of a bobbin case should be 22 - 28 g.
*Check the balance of top thread and bobbin thread at zigzag sewing for test.

〔Adjustment〕

1. Remove a face cover.
2. Keep the dial position in your mind.
3. Adjust tension as prescribed by turning a DT pressure adjusting gnat.

Turn an adjusting gnat in clockwise direction → Tension becomes stronger
Turn an adjusting gnat in anticlockwise direction → Tension becomes weaker

13. ADJUSTING MOTOR BELT TENSION

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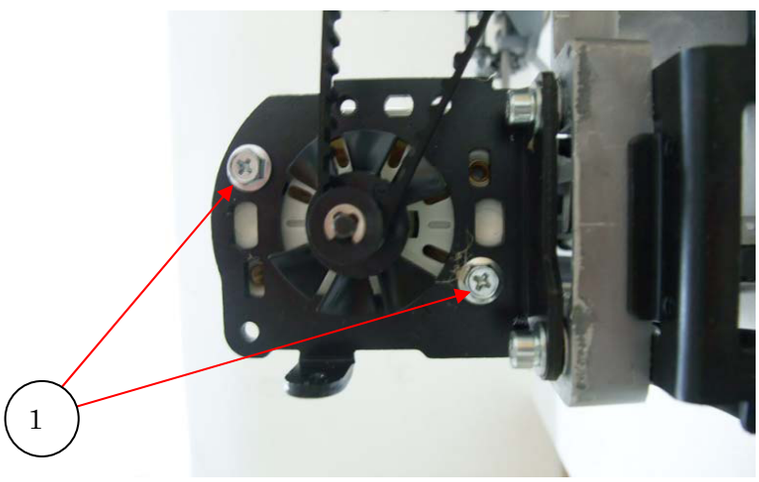

〔Checking〕

1. Remove a face cover.
2. When pushing between an upper shaft of a belt and a motor at 200 g, loosen 2 gnats(1) as it bows 7mm.
3. After adjustment, tighten 2 gnats(1).

14. ADJUSTING BUTTONHOLE PITCH BALANCE

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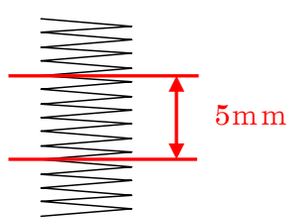
*Adjust the length control dial among indicated range for BH sewing.
*It is possible to change forward pitch with length control dial in this model. Follow the following directions to change backward pitch though it is usually fixed.

1. Adjust backward pitch by turning a screw(1). When not removing a face cover, put in a screw driver from an eyehole of a face cover top and turn a screw(1).
   Turn it in clockwise direction → Backward pitch becomes bigger
   Turn it in anticlockwise direction → Backward pitch becomes smaller

2. Adjust backward pitch as follows.



backward

10 - 15 stitches in 5 mm